

WHAT IS CLAIMED IS:

1. A brace with an integrated lumbar support system, comprising:  
a belt adapted to be positioned about a user's lower torso, the belt comprising a tube at least partially integrated within the belt;  
5 a lumbar pad coupled to the belt, the lumbar pad adapted to be positioned proximate the user's lumbar region and to be inflated to provide lumbar support to the user;  
a pump coupled to the belt, the pump adapted to provide air to the lumbar pad through the tube at least partially integrated within the belt to inflate the lumbar pad.  
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2. The brace of Claim 1, wherein:  
the belt comprises a rigid portion and a resilient portion each extending along at least a portion of a length of the belt; and  
at least a portion of the tube is secured between rigid portion and the resilient  
15 portion along the at least a portion of the length of the belt.
3. The brace of Claim 1, wherein the tube comprises:  
a coupling between a first tube portion and a second tube portion;  
the first tube portion coupled between the pump and the coupling, the first  
20 tube portion integrated within the belt along substantially an entire length of the first tube portion between the pump and the coupling; and  
the second tube portion coupled between the lumbar pad and the coupling.
4. The brace of Claim 3, wherein the coupling comprises a hollow fitting  
25 force fitted into ends of the first and second tube portions to couple the first tube portion to the second tube portion.
5. The brace of Claim 3, wherein the first tube portion integrated within  
the belt is adapted to be cut to length substantially simultaneously with the belt being  
30 cut to length to be positioned about the user's lower torso.

6. The brace of Claim 1, further comprising a release valve coupled to the tube, the release valve adapted to release air from the lumbar pad through the tube in response to depression of the valve.

5 7. The brace of Claim 1, further comprising a backplate coupled to the belt and supporting the lumbar pad.

8. The brace of Claim 1, further comprising a backplate coupled to the belt using a canting mechanism, the canting mechanism adapted to allow the belt to  
10 adjust to conform to an underlying structure and natural conical shape of the user's torso generally above the user's hips.

9. The brace of Claim 1, wherein the brace is a stabilization brace further comprising:  
15 a second belt configured to be positioned about the user's upper torso; and  
one or more supports coupled between the belts, each support comprising:  
a housing;  
a piston slidably engaged with the housing; and  
a motion limiter adjustably coupled to the housing in one of a plurality  
20 of predetermined positions, the support operable to limit flexion of the user's spine to  
a predetermined range according to the position of the motion limiter.

10. A brace with an integrated lumbar support system, comprising:

an upper belt adapted to be positioned about a user's upper torso, the upper belt comprising a rigid portion and a resilient portion each extending along at least a portion of a length of the upper belt;

5 a lower belt adapted to be positioned about the user's lower torso, the lower belt comprising a rigid portion and a resilient portion each extending along a length of the lower belt;

a lumbar pad coupled to the lower belt, the lumbar pad adapted to be positioned proximate the user's lumbar region and to be inflated to provide lumbar support to the user;

a pump coupled to the lower belt, the pump adapted to provide air to the lumbar pad to inflate the lumbar pad;

a tube adapted to transport air between the pump and the lumbar pad to inflate the lumbar pad, the tube comprising:

15 a hollow fitting coupling a first tube portion and a second tube portion;  
the first tube portion coupled between the pump and the coupling, the first tube portion secured between the rigid portion and the resilient portion of the lower belt along substantially the entire length of the lower belt between the pump and the coupling to integrate the first tube portion within the lower belt, an end of the first tube portion being force fitted over a first end of the coupling, the first tube portion adapted to be cut to length substantially simultaneously with the lower belt being cut to length to be positioned about the user's lower torso; and

20 the second tube portion coupled between the lumbar pad and the coupling, an end of the second tube portion being force fitted over a second end of the coupling;

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11. A method for fitting a user for brace with an integrated lumbar support system, comprising:

positioning a belt of the brace about the user's lower torso, the belt comprising a tube at least partially integrated within the belt and adapted to transport air between  
5 a pump and a lumbar pad positioned proximate the user's lumbar region to provide lumbar support to the user when inflated;

determining a desired length of the belt suitable to fit about the user's lower torso; and

cutting the belt to the desired length.

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12. The method of Claim 11, wherein:

the belt comprises a rigid portion and a resilient portion each extending along at least a portion of a length of the belt; and

at least a portion of the tube is secured between rigid portion and the resilient  
15 portion along the at least a portion of the length of the belt.

13. The method of Claim 11, wherein:

the tube comprises:

a first tube portion coupled between the pump and a coupling, the first  
20 tube portion integrated within the belt along substantially an entire length of the first tube portion between the pump and the coupling; and

a second tube portion coupled between the lumbar pad and the coupling; and

the method further comprises inserting the coupling into each of the first and second tube portions to couple the first tube portion to the second tube portion.

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14. The method of Claim 13, wherein the coupling comprises a hollow fitting force fitted into ends of the first and second tube portions to couple the first tube portion to the second tube portion.

15. The method of Claim 13, further comprising cutting the first tube portion integrated within the belt to the desired length substantially simultaneously with cutting the belt to the desired length.

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16. The method of Claim 11, further comprising depressing a release valve coupled to the tube to release air from the lumbar pad through the tube and at least partially deflate the lumbar pad.

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17. The method of Claim 11, further comprising:

removing the lumbar pad from a backplate supporting the lumbar pad, the lumbar pad having been secured to the backplate using one or more Velcro fasteners coupled to the lumbar pad;

10 re-positioning the lumbar pad with respect to the backplate for purposes of providing improved lumbar support; and

re-securing the lumbar pad to the backplate using the one or more Velcro fasteners coupled to the lumbar pad.

15 18. The method of Claim 11, further comprising adjusting a canting mechanism coupled between a backplate of the brace and the belt of the brace to allow the belt to conform to an underlying structure and natural conical shape of the user's torso generally above the user's hips.

20 19. The method of Claim 11, wherein the brace is a stabilization brace further comprising:

a second belt configured to be positioned about the user's upper torso; and

one or more supports coupled between the belts, each support comprising:

a housing;

25 a piston slidably engaged with the housing; and

a motion limiter adjustably coupled to the housing in one of a plurality of predetermined positions, the support operable to limit flexion of the user's spine to a predetermined range according to the position of the motion limiter.